BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN

Application of Wisconsin Public Service Corporation
For Authority to Adjust Electric and Natural Gas Rates Docket 6690-UR-122

SURREBUTTAL TESTIMONY OF MICHAEL J. VICKERMAN
ON BEHALF OF RENEW WISCONSIN

Q. Are you the same Michael J. Vickerman who presented direct testimony in this docket on behalf of RENEW Wisconsin?

A. Yes, I am.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to respond to the rebuttal testimony of Wisconsin Public Service Corporation (WPSC) witness Russell T. Laursen on the issue of net metering.

Q. Mr. Laursen states that "WPSC's rates should not be a mechanism for even a small number of customers to receive subsidies from the company or its customers." What is your response?

A. Mr. Laursen is correct on one point. The number of WPSC customers that have sought an interconnection agreement with the utility in recent years is small, as indicated in the table below. The data in that table was derived from a WPSC document (PSC REF# 190016) dated August 28, 2013, submitted in the 5-GF-233 proceeding. As is plainly evident, the number of interconnection requests at WPSC has declined substantially in recent years, due to a variety of factors that

include the imposition in 2011 of a two-tiered net metering rate structure coupled with monthly netting. As demonstrated in my direct testimony, the combination of a two-tiered rate structure and monthly netting imposes a 10 to 20% penalty on a solar electric system sized to supply the equivalent of the customer's energy usage, and acts as a deterrent to customer usage of solar. The recent reduction in installation activity occurred in spite of significant declines in the installed cost of solar generation during this period.

Interconnection requests made to WPSC by year

Year	Residential	Commercial/ Industrial	Total
2010	39	18	57
2011	52	26	78
2012	32	6	38
2013 YTD	9	4	13

It is thus ironic that Mr. Laursen would urge the Commission to "consider the future impacts with a growing number of Pg-4 (net metering) customers." (Rebuttal-WPSC-Laursen-2, line 21) because WPSC's regressive net metering policies appear designed to suppress that growth.

In addition, the testimony confirms that Mr. Laursen's entire theory is that any customer who pays less in rates than that customer causes in costs is subsidized by other customers. There are two glaring problems with this theory. First, as noted in my direct testimony, as long as there are customer classes that aggregate customers, there are going to be differences between customers within the class. A cost-causation analysis for a large group, such as Rg-1, necessarily uses averages and results in half of the customers paying more than the costs they impose and the other half causing more costs than they pay. The rest of Mr.

Laursen's argument rests on the false premise that every single member of the large customer class is identical in his or her cost causation.

Q. Mr. Laursen points to a NARUC pamphlet to support a claim that costs borne to serve distributed generation customers should be paid by those customers. How do you respond?

A. First, he picks one of the "principles" in the document he cites without reference to the others. Notably, the document as a whole notes the importance of distributed generation and of policies that support the development of such resources and technologies. The point of the pamphlet is not that utility commissions should attempt to discourage distributed generation, as WPSC would like, but that it should encourage it but make the principles and allocation of any incentives transparent and fair. Second, merely noting that costs borne to serve distributed generation customers should be paid by those customers does nothing to address the issue here: which is that net metering customers impose lower costs to serve them and provide benefits to the utility and other customers in addition to the rates they pay.

Q. Does Mr. Laursen provide any facts to dispute the significant benefits of distributed solar generation that inure to the utility and other customers?

A. No. To the extent he responds at all, it is only to offer the conclusory and completely unsupported assertion that the benefits "are small or non-existent." He conducted no analysis, and provides no facts. And his conclusions contradict the evidence that is included in the record. Specifically, my direct testimony demonstrates that net metering customers convey more in benefits plus bill

payments to the utility than the costs they cause, that cost-causation by solar customers is lower than by the rate class as a whole, and that WPSC's classification of costs between distribution and energy are fairly arbitrary for purposes of determining the minimum costs to serve net metering customers. The testimony of PSC Witness Corey Singletary is consistent with my testimony on these points. *See* Direct-PSC-Singletary-16r to 24r. In response, Mr. Laursen offers no contradictory facts and only baseless conclusory assertions that are disproven by the actual evidence in the record.

Q. In his rebuttal testimony, did Mr. Laursen present any evidence documenting that WPSC would be uniquely harmed by offering a net metering service with annual netting instead of monthly netting?

A. No, he did not. Mr. Laursen's discussion of this issue did not reveal anything unique in WPSC's cost structure to justify continuing a practice that disadvantages WPSC customer-generators relative to customer-generators interconnected to other investor-owned utilities in Wisconsin. The issue here is why WPS should be allowed to penalize net metered customer-generators through monthly netting when other regulated utilities in Wisconsin allow their customer-generators to bank "excess" production over a 12-month period. As presented in Mr. Laursen's testimony, WPSC's complaints about net metering have yet to achieve the level of detail necessary to justify a radical departure from the widespread utility practice of calculating net generation on an annual basis.

What's more, his argument is ironic because it is based on the theory that, because the electric system is "instantaneous," annual averaging is inappropriate.

Yet, much if not most of WPSC's own rate structure analysis is built on annualized costs. WPSC does not propose to charge customers a real-time rate that fluctuates from minute to minute, nor even to adjust most rates from month to month. Indeed, Mr. Laursen's own calculation on pages 4-5 of his rebuttal of cost causation uses annualized values. It is disingenuous, at best, to argue for a more precise connection to instantaneous system costs for net metering tariffs than WPSC holds itself to for nearly all other rates.

Q. Do you have any comments on the table on page 5 of Mr. Laursen's rebuttal testimony?

A. Yes. Mr. Laursen's table overstates the negative impact of a net metered solar electric system to WPS revenues in two key ways. First, it arbitrarily assigns a 1 kW peak demand reduction value to a system with a rated capacity of 4 kW. The actual evidence in the record shows that the appropriate peak demand reduction value from a 4 kW system is at least 2 kW. That number is consistent with the analysis performed by the Vermont Public Service Department (VTPSD) in its evaluation of the state's net metering law (Ex.-RENEW-Vickerman-4), as well as the other evidence in the record. Based on observed system performance, VTPSD came up with a value of 49.5% for fixed-mount arrays and 59.5% for arrays on double-axis trackers. Mr. Laursen's estimate of 25% is half that value. Mr. Laursen's testimony offers no rationale or evidence to justify reducing the peak reduction value of solar generation in his table.

Second, Mr. Laursen's table incorrectly assigns no value to net metering's benefit streams identified in the Vermont report and in my direct testimony. These

include avoided line losses, avoided regional transmission costs, reduced transmission and distribution investment needs, reduced RPS compliance costs, fuel price hedging, and market price suppression. Elsewhere in his rebuttal testimony, Mr. Laursen characterizes these benefit streams as small or non-existent, based on no actual analysis or evidence. In the example of avoided transmission costs, for example, Mr. Laursen's assessment is at odds with the Commission's own finding on that point in 05-UR-106. In that proceeding, the Commission ruled that it is reasonable to include Wisconsin Electric Power's avoided transmission costs in setting its net metering tariff. In his table on page 5, however, he assigns a value of zero to the entire suite of benefit streams identified above. Though we lack the capacity to generate utility-specific values for each of the value streams, we are confident that they have a value other than zero. Clearly, Mr. Laursen's table is weighted to overstate the costs of net metering while understating its benefits to nonparticipating customers.

Q: What comments do you have regarding Mr. Laursen's use of an average monthly distribution cost of $48.71 in his table on page 5 of his Rebuttal Testimony?

In the table on page 5 of Mr. Laursen's rebuttal testimony he compares the monthly net energy use of a single hypothetical customer with solar generation to what WPSC assumed to be the cost to serve the average customer in the Rg-1 class (i.e., $48.71 per month or $584.52 annually, as reflected in WPSC's COSS for Rg-1). This comparison is flawed for several reasons. First, there is no factual basis to assume that the actual monthly cost to WPSC of providing service

to a net metered customer is anywhere near $48.71; and in fact it is likely to be much lower because the net metered customer will cause WPSC to incur less service line, transformer, distribution, substation, transmission, and generation costs. (These are costs that Mr. Laursen asserts, without evidentiary support, are "fixed costs associated with providing [a net metered solar customer] with service" at page 4, lines 20-24 of his Rebuttal Testimony). Additionally, as reflected in the testimony of other witnesses, there are problems with how WPSC allocates production plant costs and other purported "fixed" costs. *See* Direct-PSC-Singletary-3r to 16r. In short, there is no evidence that $48.71correctly represents the fixed costs to serve an average Rg-1 customer, much less a customer with distributed generation.

Second, as noted above, it Mr. Laursen's use of the class-wide average of $48.71 incorrectly assumes that every customer in the class causes this exact cost. But that is impossible; even assuming WPSC is correct about everything else, the figure represents the <u>average annual cost for the entire class, divided by 12 months</u>. To the extent that some customers within the class actually impose a lower cost—which is undeniable—those customers are "subsidizing" the customers within the class that actually cause higher costs under his logic. Put another way, Mr. Laursen is also saying that 50% of customers in the Rg-1 tariff who cause WPSC to incur costs <u>less</u> than $48.71 per month are over-paying WPSC, and effectively subsidizing the other 50% of customers who cause WPSC to incur costs <u>more</u> than $48.71 per month.

Mr. Laursen's logic uses a figure that itself does not represent the true cost-causation for any actual customer to argue that net metering customers are not paying the costs they cause. At most, his calculation shows that net metering customers pay less than the average Rg-1 customer—but that is entirely appropriate if net metering customers cause fewer costs than the average Rg-1 customer. The evidence in the record that Mr. Laursen does not refute beyond conclusory unsupported statements is that net metering customers do, in fact, cause fewer costs and actually provide additional benefits than average customers. Therefore, even if Mr. Laursen is correct that net metering customers pay less than the cost to serve an average Rg-1 customer, he has not shown that they pay less than it actually costs to serve them.

While it may be appropriate for a net-metered solar customer to pay for the actual costs associated with providing his or her service, determining what that actual cost is requires a more granular analysis than WPSC has done. WPSC makes no attempt to actually calculate the minimum facilities needed to serve net metering customers—which the uncontroverted evidence demonstrates is different than the average customer— that would be necessary before WPSC could have a factual basis for the claims it attempts to make. At the end of the day, there simply is no factual basis or valid policy reason to assume that WPSC's monthly costs of providing service to a solar net metered customer are $48.71, or for that matter $10. And therefore, there is no basis to assert that net metering customers are not paying the true fixed costs of serving them.

Q. Has Mr. Laursen presented any evidence showing that WPSC customers are harmed by net metered systems above 20 kW?

A. No, he has not. Net metering for renewable energy systems between 20 kW and 100 kW began in April 2011, at the same time WPSC instituted its current two-tiered rate structure with monthly netting. Thus far, a total of six solar and wind energy systems between 20 kW and 100 kW has been installed under WPSC's Pg-4 rate. A review of data compiled in Ex.-RENEW-Vickerman-8 indicates that these newer and larger systems appear to be well-matched to their loads, though it is too early to draw definitive conclusions.

As discussed in my direct testimony, maintaining the current ceiling on eligible net metered systems would enable manufacturers, agricultural operations and other businesses and institutional customers to size their solar systems to more closely match their load profiles. These customers are likely to have a demand charge component in their electric service. If anything, solar systems larger than 20 kW will have less of an impact on utility revenues than smaller solar systems serving residential customers, because the hosts are likely to be demand charge customers. For a subset of these customers, the ability to demonstrate a commitment to environmental sustainability is an important element in their marketing efforts to attract new customers and retain existing customers. State policy should recognize net metering as an economic development strategy that helps business customers not only reduce their energy costs, but also to expand their appeal in the marketplaces they operate in.

Q. WPSC stated it would rescind its earlier proposal to restrict net metering to energy-only customers, but only if the Commission lowers the maximum eligible system size to 20 kW that. What would be the effect of lowering maximum system size down to 20 kW?

A. Such policy changes would certainly diminish installation activity among commercial and industrial customers, which in 2013 is already quite low. Larger customers are looking to achieve material reductions in their energy use. An arbitrary reduction in eligible system size would reduce the savings from this measure, possibly below the point where it would matter to the customer. And, as noted in my direct testimony, lowering the size of an eligible solar system does not result in a proportional decrease of system cost.

Q. Do you agree with Mr. Laursen that net metered customer-generators are subsidized by other WPSC customers?

A. No. Especially not on the basis of what Mr. Laursen has presented thus far. According to Mr. Laursen, the principal problem with net metering is that it deprives utilities of revenues associated with kilowatt-hour sales, impeding the utility's ability to recover the sunk costs of its generation, transmission and distribution infrastructure. It is true that net metered customer generators are lowering their monthly bills, and that results in less revenue for the utility. But the same is also true for customers who reduce their energy use through conservation practices and efficiency measures, especially if the customer's careful use of energy results in monthly bills that are less than the utility's distribution costs as reported by Mr. Laursen on page 5 of his rebuttal testimony. It is possible through

demand-side changes alone, such as extended absences due to work-related travel or children leaving the household, to reduce electricity consumption down to levels that do not generate sufficient revenue to cover the $48.71 which Mr. Laursen states is the average monthly cost of service to residential customers. And, as described above, Mr. Laursen's use of an "average" monthly cost (as opposed to the customer's actual monthly costs) actually reflects a subsidy from the 50% of below-average Rg-1 customers to the 50% of above-average customers. Net metered customer-generators are not the only group of customers who have taken steps responsible to lower their electricity consumption. However, WPSC sets itself apart from other Wisconsin electric providers in its zeal to impose restrictive practices such as monthly netting and a 20 kW maximum on eligible systems to create what appears to be a "zero tolerance" policy on net metering going forward.

Mr. Laursen also fails to account for the fact that WPSC, along with WEPCO, NSPW and MGE, buy net energy produced by customers at only the average LMP, whereas the vast majority of net metered generation sold to WPSC is during on-peak hours and therefore has a higher value than the average LMP. Moreover, there are further benefits provided by net metering customers that are not compensated in the LMP (transmission, distribution losses, capacity planning reserve reductions, load shifting, etc). Therefore, rather than being subsidized, net metered customer-generators are actually subsidizing other customers.

Q. Has WPSC's parent company shown any interest in supplying solar energy directly to electricity customers elsewhere in the United States?

A. Yes. Integrys Energy Services, an unregulated affiliate of WPSC, owns more than 40 MW of distributed solar electric systems across the country. The list of installations is available on Integrys's web site; simply type "Integrys Energy Assets" into a search engine and the link to the installation list will appear. Integrys owns or co-owns solar installations in Arizona, California, Connecticut, Massachusetts, New Jersey and Pennsylvania. At all but two of its solar installations, Integrys sells the electric output directly to the site host. It is reasonable to assume that most if not all of these installations take advantage of the net metering provisions in that state. It is also reasonable to assume that Integrys has acquired a great deal of experience and expertise owning and operating distributed solar electric systems. Their knowledge base could be very useful to WPSC and could help the utility overcome its clear biases against distributed solar generation.

Q. Do you have any comments on Mr. Laursen's discussion of Michigan's net metering policy?

A. Yes. Mr. Laursen likens Michigan's net metering policy, which includes a 1% ceiling on the amount of net metered generation relative to an electric utility's load, to a WPSC proposal in 6690-UR-121 to cap net metered generating capacity within its territory at 0.5% of its load. In so doing, Mr. Laursen mischaracterizes both the nature of WPSC's proposal and the reasons for RENEW's opposition to it. RENEW opposed WPSC's proposal for two reasons. First, a 1% limit is not similar to a 0.5% limit any more than the number 2 is similar to the number 1. Second, we believed then--and continue to believe today--that a proposal as

sweeping as this one, which had implications for existing and prospective customer-generators throughout Wisconsin, should not be decided in an individual utility rate case. Michigan's 1% cap was a component of a broader legislative package that balanced a significant expansion of distributed renewable generation with reasonable cost-containment measures. Notwithstanding the 1% cap, Michigan's net metering policy, which governs nearly every Michigan electric provider, is considerably more expansive than WPSC's current service. By contrast, WPSC proposed its 0.5% cap in an individual rate case without any countervailing proposal for facilitating customer-sited renewable generation. RENEW doesn't oppose a net metering cap on principle, but we firmly believe that such limits, if set by an agency with statewide authority, should be based on broadly applicable policies for all utility customers, not arbitrarily just those of one electric provider. That being the case, while we believe while such proposals properly belong in legislation or generic utility proceedings, they have no place in an individual utility's rate case.

Q. Do you have any other comments regarding WPSC's treatment of solar generation?

A. Yes. The utility appears not to have any plans to incorporate solar generation into its own generating portfolio, even though it has identified a need for new generating capacity in 2019. Other utilities are starting to incorporate solar into their resource acquisition plans. An example is Xcel Energy's Colorado utility, which recently submitted plans to add 160 MW of solar into its resource mix for 2018. In a recent news article, Michelle Aguayo, an Xcel Energy spokesperson

said: "Based on generation needs, the most reliable and most cost-effective resources happen to be solar and wind. We are not taking on solar because we have to, but because it is cost-effective and economical." (Ex.-RENEW-Vickerman-11). While it is true that Colorado has a better solar resource than Wisconsin, Xcel appears to be assigning positive value to a variety of solar's attributes, such as its capacity to hedge fuel cost and supply risk, its lack of downstream regulatory risk, and market price suppression, some of the value streams that Mr. Laursen describes as small or non-existent. With plans to build a new gas generation facility by 2019 and increase coal–fired electrical output at Columbia, WPSC is placing a big bet on fossil generation with ratepayer dollars, and leaving itself exposed to significant downside risks that could cost ratepayers greatly in future years it the utility's "business-as-usual" scenario doesn't play out according to form.

In the absence of an internal commitment to invest in solar generation, net metered customer-generation represents the only working pathway for adding solar electricity to WPSC's grid, which would provide tangible benefits to all customers while enabling system hosts to better manage their energy costs. Given the one-dimensional nature of WPSC's future resource plans, RENEW believes that the benefits today of net metered solar outweighs its current costs, and these benefits will become more valuable in future years.

Q. Does this complete your surrebuttal testimony?

A. Yes.